

CLAIMS

1. An apparatus comprising:

a first bus segment configured to transfer data in either
a first direction or a second direction;

a second bus segment configured to transfer data in
5 either said first direction or said second direction; and

a switch connected between said first bus segment and
said second bus segment, wherein said switch is configured to
transfer data in both said first direction and said second
direction simultaneously.

2. The apparatus according to claim 1, wherein said
first bus segment is connected to a first plurality of components.

3. The apparatus according to claim 2, wherein said
second bus segment is connected to a second plurality of
components.

4. The apparatus according to claim 1, wherein said
switch comprises (i) a first portion configured to transmit data in

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said first direction and (ii) a second portion configured to transmit data in said second direction.

5. The apparatus according to claim 4, wherein said first portion comprises a first plurality of memory cells and said second portion comprises a second plurality of memory cells.

6. The apparatus according to claim 1, wherein said switch comprises a cross switch.

7. The apparatus according to claim 4, wherein said first portion comprises a first buffer and said second portion comprises a second buffer.

8. The apparatus according to claim 1, wherein said first bus segment operates at a first frequency and said second bus segment operates at a second frequency.

9. The apparatus according to claim 8, wherein said first frequency is equal to said second frequency.

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10. The apparatus according to claim 8, wherein said first frequency is greater than said second frequency.

11. The apparatus according to claim 1, wherein said switch comprises a first control portion and a second control portion configured to control accesses to said first and second bus segments.

12. An apparatus comprising:

first means for transferring data in either a first direction or a second direction;

second means for transferring data in either said first
5 direction or said second direction; and

third means coupled between said first and second transferring means for transferring data in both said first direction and said second direction simultaneously.

13. A method for transferring data and/or addresses comprising the steps of:

(A) transferring data in either a first direction or a second direction on a first bus segment;

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5 (B) transferring data in either said first direction or
said second direction on a second bus segment; and

 (C) transferring said data and/or addresses on a switch
connected between said first bus segment and said second bus
segment, wherein said switch is configured to transfer data in both
10 said first direction and said second direction simultaneously.